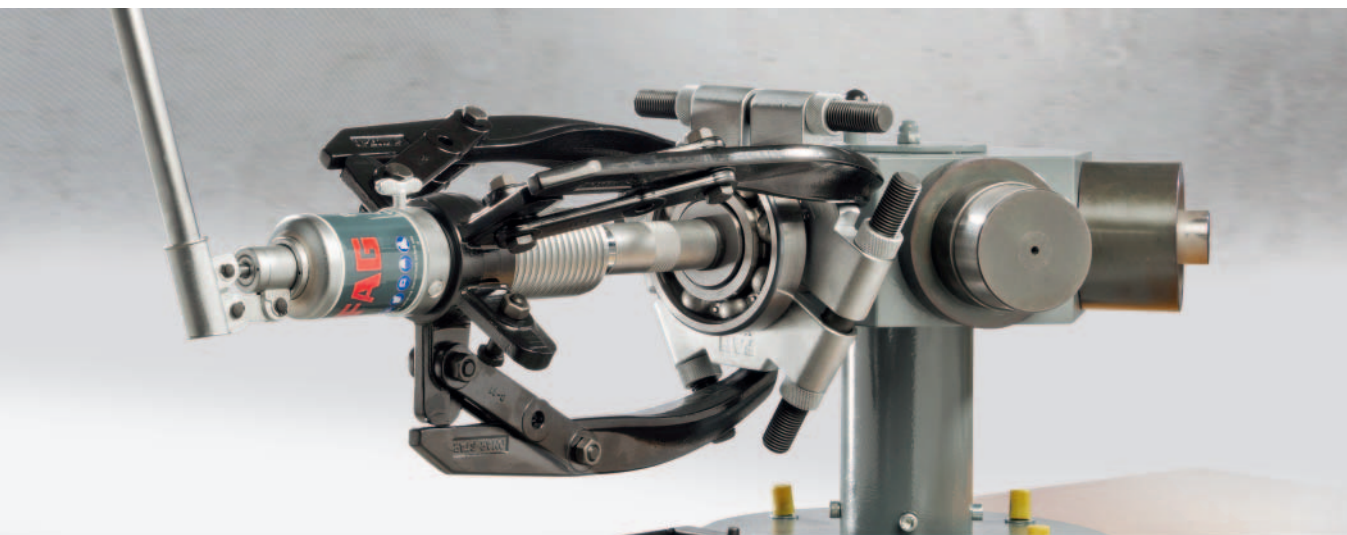


FAG



Tools for the Mechanical Mounting and Dismounting of Rolling Bearings

SCHAEFFLER

Contents

	Page
Mechanical mounting and dismounting of rolling bearings	2
Cylindrical bearing seats	2
Tapered bearing seats	3
Tools for mounting	5
Mounting tool set FITTING-TOOL-ALU-10-50	6
Tools for mounting and dismounting	15
Sockets LOCKNUT-SOCKET	18
Hook wrenches LOCKNUT-HOOK	20
Double hook wrenches LOCKNUT-DOUBLEHOOK	22
Tools for dismounting	29
Two-arm extractors PULLER-2ARM	32
Two-arm separator extractors PULLER-2ARM-SEPARATOR	34
Three-arm extractors PULLER-3ARM	36
Hydraulic extractors PULLER-HYD	38
Three-section extraction plates PULLER-TRISECTION	50
Accessories	53
Transport and mounting tool BEARING-MATE	54

Mechanical mounting and dismounting of rolling bearings

Cylindrical bearing seats

In order to prevent bearing damage, the mounting forces must always be applied to the tightly fitted ring during mounting and dismounting. If the extraction forces are directed through the rolling elements during extraction of rolling bearings, the bearings are generally rendered unusable.

Mounting

Smaller bearings can be driven cold onto the shaft or into the housing for normal tight fits.

For the economical and secure mounting of rolling bearings in the range up to 50 mm bore diameter and up to 110 mm outside diameter, mounting tool sets are suitable. They can also be used to easily mount sleeves, intermediate rings, seals and similar components, *Figure 1*.

Tightly fitted inner rings can be driven onto the shaft or outer rings can be driven into the housing bore by hitting a mounting sleeve with the hammer. Applying the mounting force to the tightly fitted bearing ring prevents the mounting forces from being transmitted through the rolling elements and raceways, which can lead to damage. The precision parts are matched to each other, ensuring that the forces are uniformly transmitted to the side faces of the bearing rings.



Figure 1
Mounting tool set

Dismounting

Extraction tools are used for dismounting. Particular care is also necessary during dismounting in order to prevent damage to the bearing. The extraction tool must always be applied to the ring to be removed.

For the dismounting of small bearings up to approx. 100 mm bore diameter that are located with a tight fit on the shaft or in the housing, mechanical extractors are used. The extraction force is normally applied by means of a threaded spindle, *Figure 2*.

In the case of extractors for larger rolling bearings, the work can be aided by means of a hydraulic spindle. In this way, extraction forces of up to 400 kN (forty tonnes) can be generated.



Figure 2
Two-arm extractor

Tapered bearing seats

The inner ring of a bearing with a tapered bore is always mounted with a tight fit. The bearing can be seated directly on a tapered shaft or be located on a cylindrical shaft using an adapter sleeve or withdrawal sleeve. When the inner ring is pushed on, it is expanded and the radial internal clearance of the bearing is reduced.

The reduction in radial internal clearance is thus an indication of the seating of the inner ring. In order to prevent bearing damage, the inner ring must not be pushed on too far.

As an alternative to measurement of the radial internal clearance, the axial drive-up distance can also be measured in order to set the radial internal clearance correctly.

Locknuts can be easily tightened and loosened on shafts, adapter sleeves and withdrawal sleeves using sockets. If no tightening torque is specified, hook wrenches are suitable for tightening and loosening locknuts and precision locknuts on shafts, adapter sleeves or withdrawal sleeves, *Figure 3*.



Figure 3
Hook wrench

Mechanical mounting and dismounting of rolling bearings

Double hook wrenches are engraved with a torsional angle scale. The radial internal clearance can thus be set precisely for self-aligning ball bearings and spherical roller bearings without the need for measurement, *Figure 4*.



Figure 4
Double hook wrench

FAG MOUNTING MANAGER

The online calculation program MOUNTING MANAGER is a user-friendly aid for ensuring the correct mounting of bearings with a tapered bore. It shows suitable mounting methods, calculates the data required for mounting in relation to the reduction in radial internal clearance and drive-up distance and generates a list of the accessories and tools required.

Further information

- Guide values for the reduction in radial internal clearance: Mounting Handbook MH 1, Mounting of Rolling Bearings
- Feeler gauges for measuring the radial internal clearance of rolling bearings: Catalogue IS 1, Mounting and Maintenance of Rolling Bearings
- Online calculation program FAG MOUNTING MANAGER: <http://mountingmanager.schaeffler.com>.



Tools for mounting

Mounting tool set

Mounting tool set FITTING-TOOL-ALU-10-50

Features

The mounting tool set FITTING-TOOL-ALU-10-50 facilitates particularly economical mounting of many standardised rolling bearings and other parts with a cylindrical bore. It is suitable for rolling bearings with a bore diameter of 10 mm to 50 mm. Each mounting sleeve can be pushed over the shaft end by up to 220 mm.

The mounting rings are made from impact-resistant plastic. This prevents metal/metal contact as well as damage to or premature wear of the bearing seats. The mounting sleeves are made from aluminium. The head of the recoilless hammer produces no sparks.

The low mass of the components makes this mounting tool set very easy to handle. The parts are driven into place by hitting the mounting sleeve with the hammer, *Figure 1*.



Figure 1
FITTING-TOOL-ALU

The combination of mounting ring and mounting sleeve required for a particular bearing is given in the dimension tables. This can also be taken from the worksheet included in the case for the mounting tool set.

It must be noted that, in some cases, the bearing can only be mounted in the housing while the shaft is dismounted. This is the case if the bore diameter of the bearing is larger than the inside diameter of the available mounting rings.

Scope of delivery

Scope of delivery of the mounting tool set FITTING-TOOL-ALU-10-50, *Figure 2*:

- 33 mounting rings
- 3 mounting sleeves
- 1 recoilless hammer
- 1 transport case.

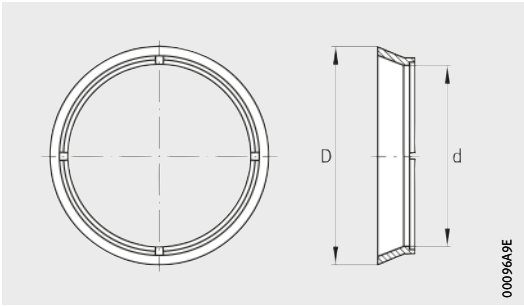
Hammers and mounting sleeves can also be ordered as individual items. Mounting rings can also be ordered as a set comprising 3 mounting rings. The mounting rings in one set are of the same inside diameter but different outside diameters. The dimensions of the transport case are 437 mm×379 mm×130 mm.



Figure 2
Mounting tool set
FITTING-TOOL-ALU-10-50

Mounting tool set

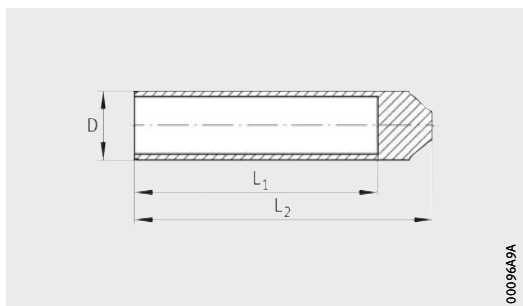
Mounting rings
Mounting sleeves
For mounting of bearings
with and without shaft



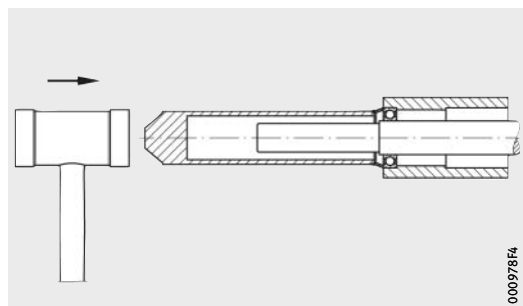
FITTING-TOOL-ALU.RING

Dimension table · Dimensions in mm								
Mounting ring				Mounting sleeve				
Set ¹⁾ Designation	Dimensions		Mass m ≈ kg	Designation	Dimensions			Mass m ≈ kg
	d	D			D	L ₁	L ₂	
FITTING-TOOL-ALU.RING10-SET	10	26	0,005	FITTING-TOOL-ALU.SLEEVE-A	25	210	235	0,15
		30	0,006					
		35	0,008					
FITTING-TOOL-ALU.RING12-SET	12	28	0,005	FITTING-TOOL-ALU.SLEEVE-A	25	210	235	0,15
		32	0,007					
		37	0,01					
FITTING-TOOL-ALU.RING15-SET	15	32	0,007	FITTING-TOOL-ALU.SLEEVE-A	25	210	235	0,15
		35	0,008					
		42	0,011					
FITTING-TOOL-ALU.RING17-SET	17	35	0,008	FITTING-TOOL-ALU.SLEEVE-A	25	210	235	0,15
		40	0,01					
		47	0,013					
FITTING-TOOL-ALU.RING20-SET	20	42	0,013	FITTING-TOOL-ALU.SLEEVE-B	41	210	240	0,34
		47	0,015					
		52	0,018					
FITTING-TOOL-ALU.RING25-SET	25	47	0,013	FITTING-TOOL-ALU.SLEEVE-B	41	210	240	0,34
		52	0,016					
		62	0,029					

1) Each set comprises 3 mounting rings of the same inside diameter but different outside diameters.



FITTING-TOOL-ALU.SLEEVE

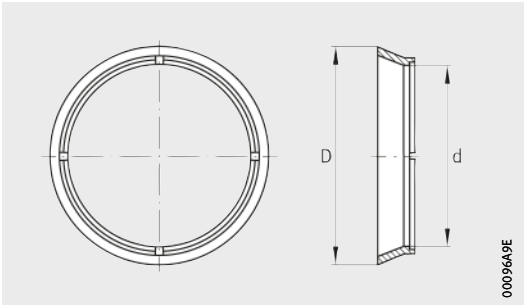


Mounting of bearings possible
with and without shaft

Suitable for							
Deep groove ball bearings	Self-aligning ball bearings	Angular contact ball bearings		Spherical roller bearings	Cylindrical roller bearings	Tapered roller bearings	
		Single row 72...-B, 73...-B	Double row 32, 33			302, 303, 322	313, 323
60, 62, 63, 64	12, 13, 22, 23			213, 222, 223	NU, NJ, N		
6000	–	–	–	–	–	–	–
6200	1200	–	3200	–	–	–	–
–	2200		–				
6300	1300	–	–	–	–	–	–
6001	–	–	–	–	–	–	–
6201	1201	–	3201	–	–	–	–
–	2201		–				
6301	1301	–	–	–	–	–	–
–	2301						
6002	–	–	–	–	–	–	–
6202	1202	7202-B	3202	–	–	–	–
–	2202	–	–				
6302	1302	–	3302	–	–	30302	–
–	2302		–			–	
6003	–	–	–	–	–	–	–
6203	1203	7203-B	3203	–	–	30203	–
–	2203	–	–			–	
6303	1303	7303-B	3303	–	–	30303	–
–	2303	–	–			–	
6004	–	–	–	–	–	–	–
6204	1204	7204-B	3204	–	204	–	–
–	2204	–	–		–		
6304	1304	7304-B	3304	21304	304	30304	32304
6403	2304	–	–	–	–	–	–
6005	–	–	–	–	–	–	–
6205	1205	7205-B	3205	22205	205	30205	–
–	2205	–	–	–	–	–	
6305	1305	7305-B	3305	21305	305	30305	31305
6404	2305	–	–	–	–	–	32305

Mounting tool set

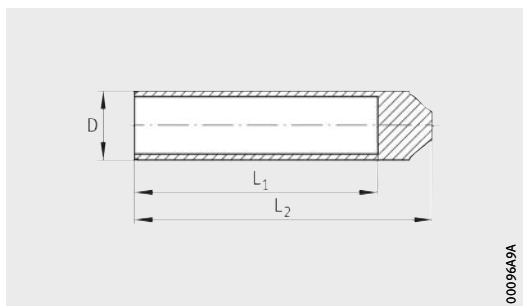
Mounting rings
Mounting sleeves
For mounting of bearings
with and without shaft



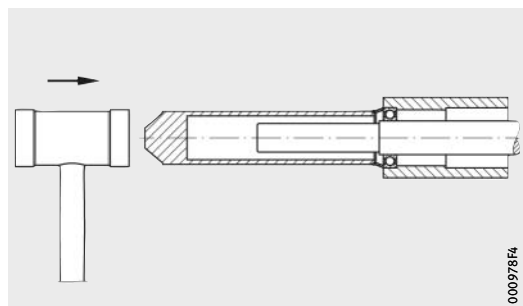
FITTING-TOOL-ALU.RING

Dimension table (continued) · Dimensions in mm								
Mounting ring				Mounting sleeve				
Set ¹⁾ Designation	Dimensions		Mass	Designation	Dimensions			Mass
	d	D	m ≈ kg		D	L ₁	L ₂	m ≈ kg
FITTING-TOOL-ALU.RING30-SET	30	55	0,018	FITTING-TOOL-ALU.SLEEVE-B	41	210	240	0,34
		62	0,026					
		72	0,042					
FITTING-TOOL-ALU.RING35-SET	35	62	0,027	FITTING-TOOL-ALU.SLEEVE-C	61	210	245	0,34
		72	0,037					
		80	0,047					
FITTING-TOOL-ALU.RING40-SET	40	68	0,03	FITTING-TOOL-ALU.SLEEVE-C	61	210	245	0,56
		80	0,045					
		90	0,067					
FITTING-TOOL-ALU.RING45-SET	45	75	0,034	FITTING-TOOL-ALU.SLEEVE-C	61	210	245	0,56
		85	0,046					
		100	0,083					
FITTING-TOOL-ALU.RING50-SET	50	80	0,036	FITTING-TOOL-ALU.SLEEVE-C	61	210	245	0,56
		90	0,056					
		110	0,103					

1) Each set comprises 3 mounting rings of the same inside diameter but different outside diameters.



FITTING-TOOL-ALU.SLEEVE

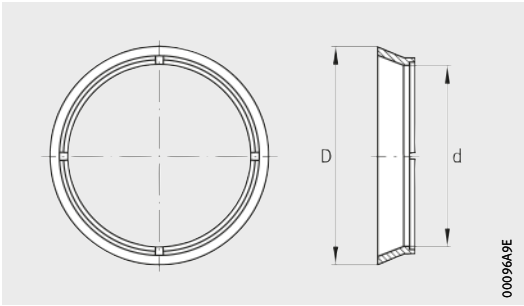


Mounting of bearings possible
with and without shaft

Suitable for							
Deep groove ball bearings	Self-aligning ball bearings	Angular contact ball bearings		Spherical roller bearings	Cylindrical roller bearings	Tapered roller bearings	
		Single row 72...-B, 73...-B	Double row 32, 33			302, 303, 322	313, 323
60, 62, 63, 64	12, 13, 22, 23			213, 222, 223	NU, NJ, N		
6006	–	–	–	–	–	–	–
6206	1206	7206-B	3206	22206	206	30206	–
–	2206	–	–	–	–	32206	
6306	1306	7306-B	3306	21306	306	30306	31306
6405	2306	–	–	–	405	–	32306
6007	–	–	–	–	–	–	–
6207	1207	7207-B	3207	22207	207	30207	–
–	2207	–	–	–	–	32207	
6307	1307	7307-B	3307	21307	307	30307	31307
6406	2307	–	–	–	406	–	32307
6008	–	–	–	–	–	–	–
6208	1208	7208-B	3208	22208	208	30208	–
–	2208	–	–	–	–	32208	
6308	1308	7308-B	3308	21308	308	30308	31308
6407	2308	–	–	22308	407	–	32308
6009	–	–	–	–	–	–	–
6209	1209	7209-B	3209	22209	209	30209	–
–	2209	–	–	–	–	32209	
6309	1309	7309-B	3309	21309	309	30309	31309
6408	2309	–	–	22309	408	–	32309
6010	–	–	–	–	–	–	–
6210	1210	7210-B	3210	22210	210	30210	–
–	2210	–	–	–	–	32210	
6310	1310	7310-B	3310	21310	310	30310	31310
6409	2310	–	–	22310	409	–	32310

Mounting tool set

Mounting rings
Mounting sleeves
For mounting of bearings
with dismounted shaft

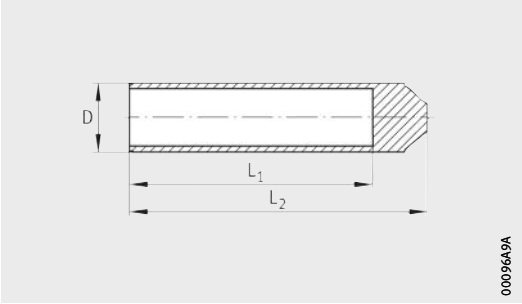


FITTING-TOOL-ALU.RING

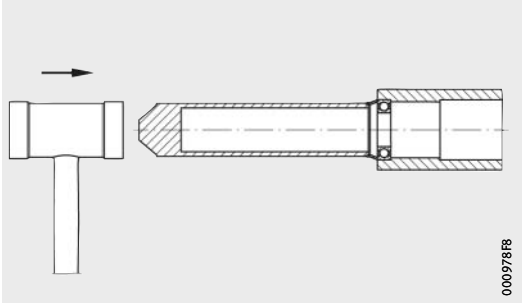
Dimension table · Dimensions in mm								
Mounting ring				Mounting sleeve				
Set ¹⁾ Designation	Dimensions		Mass m ≈ kg	Designation	Dimensions			Mass m ≈ kg
	d	D			D	L ₁	L ₂	
FITTING-TOOL-ALU.RING45-SET ²⁾	45	100	0,083	FITTING-TOOL-ALU.SLEEVE-C	61	210	245	0,56
FITTING-TOOL-ALU.RING50-SET ²⁾	50	90	0,056	FITTING-TOOL-ALU.SLEEVE-C	61	210	245	0,56
		110	0,103					

Other ordering numbers:
FITTING-TOOL-ALU-10-50: Complete tool set, mass m ≈ 4,18 kg;
scope of delivery, see page 7.
FITTING-TOOL-ALU.HAMMER: Hammer, recoilless, mass m ≈ 0,95 kg.

- 1) Each set comprises 3 mounting rings of the same inside diameter but different outside diameters.
- 2) Complete description of the set including all mounting rings, see page 10.



FITTING-TOOL-ALU.SLEEVE



Mounting of bearings only possible with dismounted shaft

Suitable for					
Deep groove ball bearings	Self-aligning ball bearings	Angular contact ball bearings		Spherical roller bearings	Cylindrical roller bearings
		Single row	Double row		
60, 62, 63, 64	12, 13, 22, 23	72...-B, 73...-B	32, 33	213, 222, 223	NU, NJ, N
6013	1211	7211-B	3211	22211	211
6211	2211	–	–	–	–
6011	–	–	–	–	–
6012	–	–	–	–	–
6014	1212	7212-B	3212	22212	212
6015	1213	7213-B	3213	22213	213
6212	2212	7311-B	3311	21311	311
6213	2213	–	–	22311	410
6311	1311	–	–	–	–
6410	2311	–	–	–	–



Tools for mounting and dismounting

Sockets
Hook wrenches
Double hook wrenches

Tools for mounting and dismounting

Sockets 18

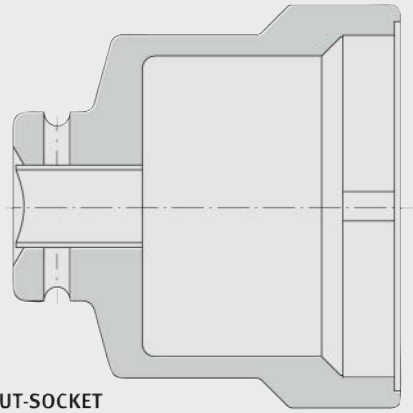
Sockets LOCKNUT-SOCKET facilitate the tightening and loosening of locknuts with the aid of ratchets and torque wrenches. As a result, torque-controlled tightening is possible. A further advantage is that they require little space on the circumference of the nut.

Hook wrenches 20

Hook wrenches LOCKNUT-HOOK are suitable for the tightening and loosening of locknuts KM on shafts, adapter sleeves and withdrawal sleeves.

Double hook wrenches 22

Double hook wrenches LOCKNUT-DOUBLEHOOK are suitable for the mounting of self-aligning ball bearings and spherical roller bearings with a tapered bore. They can be used to set the radial internal clearance of these bearings while tightening the locknuts without the need for measurement of the radial internal clearance or the axial drive-up distance.



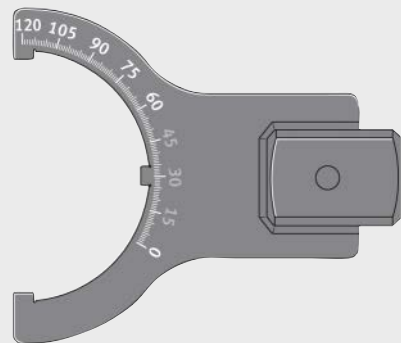
LOCKNUT-SOCKET

000A4634



LOCKNUT-HOOK

000A463B



LOCKNUT-DOUBLEHOOK

000A4641

Sockets LOCKNUT-SOCKET

Features

The sockets LOCKNUT-SOCKET, *Figure 1*, are suitable for the tightening and loosening of locknuts KM0 to KM20 on shafts as well as on adapter sleeves and withdrawal sleeves.



Figure 1
Sockets LOCKNUT-SOCKET

The sockets require less space on the circumference of the nut than hook wrenches and allow the use of ratchets and torque wrenches, *Figure 2*.

For safer working, the sockets should be secured using a locking pin and rubber washer. The socket therefore has a hole for the locking pin and a groove for the rubber washer. The rubber washer prevents the locking pin from falling out. The locking pin and rubber washer are included in the scope of delivery.



Figure 2
Use of the socket LOCKNUT-SOCKET

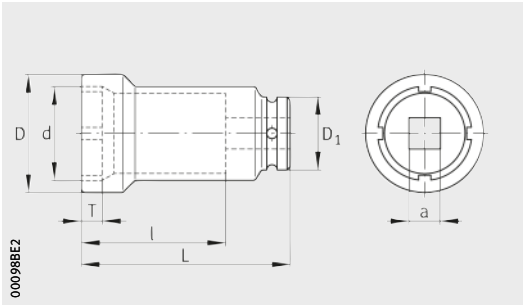
Improved coating of the surface

The sockets LOCKNUT-SOCKET have a new type of coating. This coating replaces the black oxide coating that was previously used on these components. It has a lustrous silver colour.

The advantages of the coating are as follows:

- It is free from heavy metals and therefore environmentally acceptable.
- It gives improved corrosion protection compared to black oxide coating.

Sockets



LOCKNUT-SOCKET

Dimension table - Dimensions in mm										
Designation	Dimensions						Square section	Mass	Suitable for	
	d	D	D ₁	L	l	T	a <i>inch</i>	m ≈ kg	Lock-nuts	Precision locknuts
LOCKNUT-SOCKET-KM0	18,1	22	22	57	44	5	3/8	0,11	KM0	ZM10
LOCKNUT-SOCKET-KM1	22,2	28	22	57	44	5	3/8	0,11	KM1	ZM12
LOCKNUT-SOCKET-KM2	25,2	33	30	82	61	6	1/2	0,27	KM2	ZM15
LOCKNUT-SOCKET-KM3	28,2	36	30	82	61	6	1/2	0,24	KM3	ZM17
LOCKNUT-SOCKET-KM4	32,2	38	30	82	58	9	1/2	0,28	KM4	ZM20
LOCKNUT-SOCKET-KM5	38,2	46	30	82	58	9	1/2	0,38	KM5	ZMA20/38, ZM25
LOCKNUT-SOCKET-KM6	45,2	53	30	82	58	9	1/2	0,42	KM6	ZMA25/45, ZM30
LOCKNUT-SOCKET-KM7	52,2	60	30	82	58	9	1/2	0,47	KM7	ZMA20/52, ZMA30/52, ZM35
LOCKNUT-SOCKET-KM8	58,3	68	30	82	58	9	1/2	0,61	KM8	ZMA25/58, ZMA35/58, ZM40
LOCKNUT-SOCKET-KM9	65,4	73,5	44	90	62	13,5	3/4	0,8	KM9	ZMA30/65, ZM45
LOCKNUT-SOCKET-KM10	70,4	78,5	44	90	62	13,5	3/4	0,9	KM10	ZMA35/70, ZM50
LOCKNUT-SOCKET-KM11	75,4	83,5	44	90	62	13,5	3/4	0,9	KM11	ZMA40/75, ZMA50/75, ZM55
LOCKNUT-SOCKET-KM12	80,4	88,5	44	90	60	13,5	3/4	1,04	KM12	–
LOCKNUT-SOCKET-KM13	85,4	94	44	90	60	13,5	3/4	1,12	KM13	ZMA45/85, ZM65
LOCKNUT-SOCKET-KM14	92,5	103	76	110	74	12	1	2,13	KM14	ZMA50/92, ZM70
LOCKNUT-SOCKET-KM15	98,5	109	76	110	74	13	1	2,24	KM15	ZMA55/98, ZMA60/98, ZM75
LOCKNUT-SOCKET-KM16	105,6	116	76	110	74	15	1	2,35	KM16	ZMA65/105, ZM80
LOCKNUT-SOCKET-KM17	110,6	121	76	110	74	16	1	2,5	KM17	ZMA70/110, ZM85
LOCKNUT-SOCKET-KM18	120,6	131	76	110	74	16	1	2,72	KM18	ZMA80/120, ZM90
LOCKNUT-SOCKET-KM19	125,6	137	76	110	74	17	1	3,01	KM19	ZMA75/125
LOCKNUT-SOCKET-KM20	130,6	143	76	110	74	18	1	3,24	KM20	ZMA90/130, ZM100
LOCKNUT-SOCKET-KM21	115	153	76	110	80	18	1	3,43	KM21	ZMA100/140, ZM105
LOCKNUT-SOCKET-KM22	120	158	76	110	80	18	1	3,54	KM22	ZM110
LOCKNUT-SOCKET-KM24	130	170	76	110	80	18	1	4,15	KM24	ZMA90/115, ZM120

Sockets LOCKNUT-SOCKET are also suitable, in combination with sockets AMS, for precision locknuts AM.
 Further information: see TPI 123, Bearings for Screw Drives.

Hook wrenches LOCKNUT-HOOK

Features

The hook wrenches LOCKNUT-HOOK in accordance with DIN 1810-A are suitable for the tightening and loosening of locknuts KM on shafts, adapter sleeves and withdrawal sleeves, if no tightening torque is specified.

The hook wrenches are suitable for locknuts KM0 to KM40. Special sizes are available by agreement.

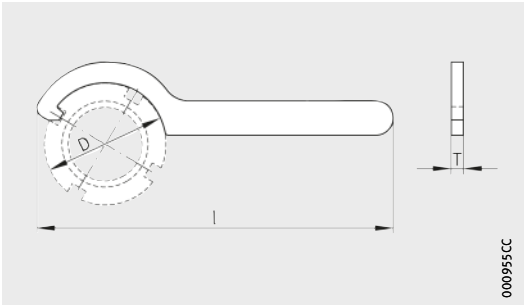
Hook wrenches can be used to mount rolling bearings on tapered shaft seats, on adapter sleeves and on withdrawal sleeves. Withdrawal sleeves can also be dismantled using hook wrenches together with the extraction nuts.

Hook wrenches can be ordered as individual items. The hook wrenches for the locknuts KM0 to KM16 are also available as a set with a roll-up pouch, *Figure 1*.



Figure 1
Hook wrench set
LOCKNUT-HOOK-KM0-16-SET

Hook wrenches



LOCKNUT-HOOK

Dimension table · Dimensions in mm							
Designation	Set	Dimensions				Mass m ≈ kg	Suitable for locknuts
		D		l	T		
		min.	max.				
LOCKNUT-HOOK-KM0-1	①	16	20	110	3	0,03	KM0, KM1
LOCKNUT-HOOK-KM2-3	①	25	28	136	4	0,05	KM2, KM3
LOCKNUT-HOOK-KM4	①	30	32	136	4	0,05	KM4
LOCKNUT-HOOK-KM5	①	34	36	170	5	0,09	KM5
LOCKNUT-HOOK-KM6	①	45	50	206	6	0,16	KM6
LOCKNUT-HOOK-KM7	①	52	55	206	6	0,16	KM7
LOCKNUT-HOOK-KM8-9	①	58	62	240	7	0,26	KM8, KM9
LOCKNUT-HOOK-KM10-11	①	68	75	240	7	0,26	KM10, KM11
LOCKNUT-HOOK-KM12-14	①	80	90	280	8	0,41	KM12, KM13, KM14
LOCKNUT-HOOK-KM15-16	①	95	100	280	8	0,41	KM15, KM16
LOCKNUT-HOOK-KM17	–	110	115	335	10	0,75	KM17
LOCKNUT-HOOK-KM18-20	–	120	130	335	10	0,72	KM18, KM19, KM20
LOCKNUT-HOOK-KM21-23	–	135	145	385	10	1	KM21, KM22, KM23
LOCKNUT-HOOK-KM24-27	–	155	165	385	10	0,97	KM24, KM25, KM26, KM27
LOCKNUT-HOOK-KM28-30	–	180	195	470	10	1,5	KM28, KM29, KM30
LOCKNUT-HOOK-KM31-34	–	205	220	470	10	1,58	KM31, KM32, KM33, KM34
LOCKNUT-HOOK-KM36-40	–	230	245	568	10	2,25	KM36, KM38, KM40

Special sizes are available by agreement.

① Constituent part of **LOCKNUT-HOOK-KM0-16-SET**, mass m ≈ 2,01 kg.

Double hook wrenches LOCKNUT-DOUBLEHOOK

Features The double hook wrenches LOCKNUT-DOUBLEHOOK, *Figure 1*, are suitable for the mounting of self-aligning ball bearings and spherical roller bearings with a tapered bore. They can be used to set the radial internal clearance of these bearings precisely without the need for measurement of the radial internal clearance or the axial drive-up distance. Each double hook wrench is engraved with a torsional angle scale.



Figure 1
Double hook wrench
LOCKNUT-DOUBLEHOOK

Together with the double hook wrench, a torque wrench and mounting lever are required. For the torque wrench WRENCH20-100NM, which is used for locknuts from KM9, an adapter is also necessary, *Figure 2*. When the torque wrench is ordered, the adapter is included in the scope of delivery.



- ① Double hook wrench
- ② Torsional angle scale
- ③ Torque wrench
- ④ Adapter
- ⑤ Mounting lever

Figure 2
Double hook wrench and
accessories required

When using double hook wrenches, the first stage involves screwing the locknut into place as far as the initial mounting position. In order to determine this position exactly, a suitable torque wrench is necessary. The double hook wrench set includes a suitable wrench of this type.

In a second stage, the locknut is tightened with the aid of the torsional angle scale until the correct drive-up distance and thus the correct radial internal clearance of the bearing is achieved, *Figure 3*.

Information on the tightening torques and torsional angles for all suitable bearings is given in the user manual BA 28 included with the double hook wrench sets.



Figure 3
Use of the double hook wrench
LOCKNUT-DOUBLEHOOK

Double hook wrenches LOCKNUT-DOUBLEHOOK

Double hook wrench sets

The double hook wrenches can be ordered as individual items or in a set. There are 2 double hook wrench sets available.

LOCKNUT-DOUBLEHOOK-KM3-8-SET

The set LOCKNUT-DOUBLEHOOK-KM3-8-SET, *Figure 4*, comprises:

- 1 torque wrench:
 - LOCKNUT-DOUBLEHOOK.WRENCH10-50NM
- 6 double hook wrenches:
 - LOCKNUT-DOUBLEHOOK-KM3-D16
 - LOCKNUT-DOUBLEHOOK-KM4-D16
 - LOCKNUT-DOUBLEHOOK-KM5-D16
 - LOCKNUT-DOUBLEHOOK-KM6-D16
 - LOCKNUT-DOUBLEHOOK-KM7-D16
 - LOCKNUT-DOUBLEHOOK-KM8-D16
- 1 mounting lever:
 - LOCKNUT-DOUBLEHOOK.LEVER400
- 1 mounting paste:
 - ARCANOL-MOUNTINGPASTE-70G
- 1 transport case
- 1 user manual:
 - MATNR 032821409-0000.



00097AD1

Figure 4
Double hook wrench set
LOCKNUT-DOUBLEHOOK-KM3-8-SET

LOCKNUT-DOUBLEHOOK-KM9-15-SET

The set LOCKNUT-DOUBLEHOOK-KM9-15-SET, *Figure 5*, comprises:

- 1 torque wrench with adapter:
 - LOCKNUT-DOUBLEHOOK.WRENCH20-100NM
 - LOCKNUT-DOUBLEHOOK.WRENCH-ADAPTER22-16
- 7 double hook wrenches:
 - LOCKNUT-DOUBLEHOOK-KM9-D22
 - LOCKNUT-DOUBLEHOOK-KM10-D22
 - LOCKNUT-DOUBLEHOOK-KM11-D22
 - LOCKNUT-DOUBLEHOOK-KM12-D22
 - LOCKNUT-DOUBLEHOOK-KM13-D22
 - LOCKNUT-DOUBLEHOOK-KM14-D22
 - LOCKNUT-DOUBLEHOOK-KM15-D22
- 1 mounting lever:
 - LOCKNUT-DOUBLEHOOK.LEVER400
- 1 mounting paste:
 - ARCANOL-MOUNTINGPASTE-70G
- 1 transport case
- 1 user manual:
 - MATNR 032821409-0000.

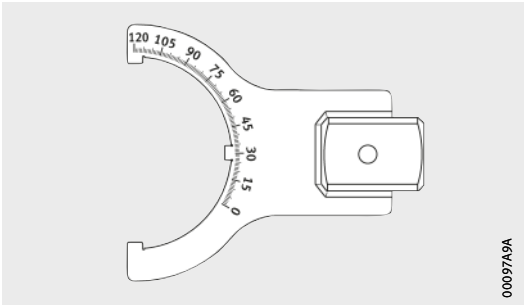


Figure 5
Double hook wrench set
LOCKNUT-DOUBLEHOOK-KM9-15-SET

Further information

- User manual BA 28, LOCKNUT-DOUBLEHOOK.

Double hook wrenches

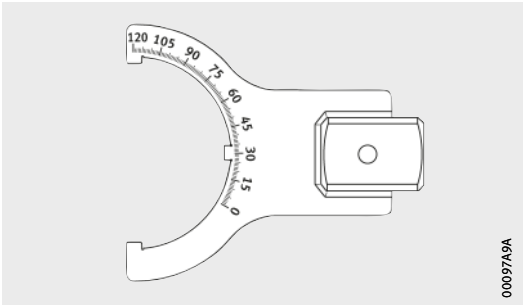


LOCKNUT-DOUBLEHOOK

Dimension table					
Designation	Set	Suitable for			Mass m ≈ kg
		Self-aligning ball bearings with tapered bore	Spherical roller bearings with tapered bore	Locknut	
LOCKNUT-DOUBLEHOOK-KM3-D16	①	1203-K	–	KM3	0,2
		2203-K	–		
		1303-K	–		
		2303-K	–		
LOCKNUT-DOUBLEHOOK-KM4-D16	①	1204-K	21304...-K	KM4	0,2
		2204-K	–		
		1304-K	–		
		2304-K	–		
LOCKNUT-DOUBLEHOOK-KM5-D16	①	1205-K	22205...-K	KM5	0,2
		2205-K	21305...-K		
		1305-K	–		
		2305-K	–		
LOCKNUT-DOUBLEHOOK-KM6-D16	①	1206-K	22206...-K	KM6	0,2
		2206-K	21306...-K		
		1306-K	22306...-K		
		2306-K	–		
LOCKNUT-DOUBLEHOOK-KM7-D16	①	1207-K	22207...-K	KM7	0,2
		2207-K	21307...-K		
		1307-K	22307...-K		
		2307-K	–		
LOCKNUT-DOUBLEHOOK-KM8-D16	①	1208-K	22208...-K	KM8	0,3
		2208-K	21308...-K		
		1308-K	22308...-K		
		2308-K	–		
LOCKNUT-DOUBLEHOOK-KM9-D22	②	1209-K	22209...-K	KM9	0,4
		2209-K	21309...-K		
		1309-K	22309...-K		
		2309-K	–		

① Constituent part of **LOCKNUT-DOUBLEHOOK-KM3-8-SET**, mass m ≈ 4,55 kg.
 ② Constituent part of **LOCKNUT-DOUBLEHOOK-KM9-15-SET**, mass m ≈ 6,85 kg.

Double hook wrenches



LOCKNUT-DOUBLEHOOK

Dimension table (continued) · Dimensions in mm					
Designation	Set	Suitable for			Mass m ≈ kg
		Self-aligning ball bearings with tapered bore	Spherical roller bearings with tapered bore	Locknut	
LOCKNUT-DOUBLEHOOK-KM10-D22	②	1210-K	22210..-K	KM10	0,4
		2210-K	21310..-K		
		1310-K	22310..-K		
		2310-K	–		
LOCKNUT-DOUBLEHOOK-KM11-D22	②	1211-K	22211..-K	KM11	0,4
		2211-K	21311..-K		
		1311-K	22311..-K		
		2311-K	–		
LOCKNUT-DOUBLEHOOK-KM12-D22	②	1212-K	22212..-K	KM12	0,4
		2212-K	21312..-K		
		1312-K	22312..-K		
		2312-K	–		
LOCKNUT-DOUBLEHOOK-KM13-D22	②	1213-K	22213..-K	KM13	0,4
		2213-K	21313..-K		
		1313-K	22313..-K		
		2313-K	–		
LOCKNUT-DOUBLEHOOK-KM14-D22	②	1214-K	22214..-K	KM14	0,4
		2214-K	21314..-K		
		1314-K	22314..-K		
		2314-K	–		
LOCKNUT-DOUBLEHOOK-KM15-D22	②	1215-K	22215..-K	KM15	0,4
		2215-K	21315..-K		
		1315-K	22315..-K		
		2315-K	–		
LOCKNUT-DOUBLEHOOK.WRENCH10-50NM	①	–	–	KM3 – KM8	1,1
LOCKNUT-DOUBLEHOOK.WRENCH20-100NM	②	–	–	KM9 – KM15	2,3
LOCKNUT-DOUBLEHOOK.LEVER	①, ②	–	–	KM3 – KM15	0,8

① Constituent part of **LOCKNUT-DOUBLEHOOK-KM3-8-SET**, mass m ≈ 4,55 kg.

② Constituent part of **LOCKNUT-DOUBLEHOOK-KM9-15-SET**, mass m ≈ 6,85 kg.



Tools for dismounting

- Two-arm extractors
- Two-arm separator extractors
- Three-arm extractors
- Hydraulic extractors
- Three-section extraction plates

Tools for dismounting

Two-arm extractors 32

Two-arm extractors PULLER-2ARM are suitable for the extraction of rolling bearings or other tightly fitted components that can be gripped from the inside or outside.

Two-arm separator extractors 34

Two-arm separator extractors PULLER-2ARM-SEPARATOR are intended specifically for the extraction of bearing rings that are in full contact with a surface and do not have extraction slots.

Three-arm extractors 36

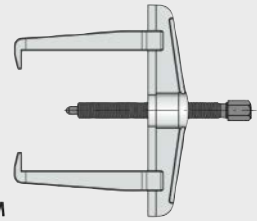
Three-arm extractors PULLER-3ARM are suitable for the extraction of rolling bearings or other tightly fitted components that have good axial and radial accessibility for gripping from the outside.

Hydraulic extractors 38

Hydraulic extractors PULLER-HYD facilitate the extraction even of larger rolling bearings. The extraction forces are applied by means of a hydraulic cylinder.

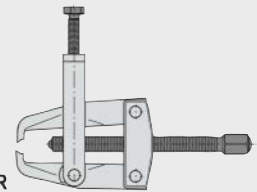
Three-section extraction plates 50

Three-section extraction plates PULLER-TRISECTION are used in conjunction with a three-arm extractor for rolling bearings or inner rings.



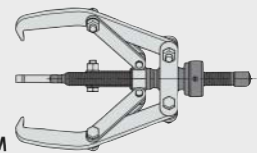
PULLER-2ARM

000A4650



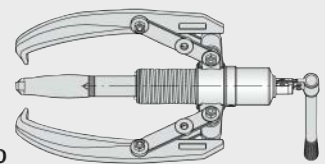
PULLER-2ARM-SEPARATOR

000A4657



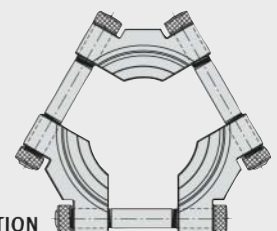
PULLER-3ARM

000A465D



PULLER-HYD

000A4664



PULLER-TRISECTION

000A466A

Two-arm extractors PULLER-2ARM

Features



Figure 1
Two-arm extractor PULLER-2ARM

The grip width is adjusted by moving the arms on the crossbar. Symmetrical adjustment is aided by a scale. During extraction, a self-locking device prevents the arms from slipping off. A rotatable insert in the spindle facilitates selection of either a pointed or round centring tip.

PULLER-2ARM-SET

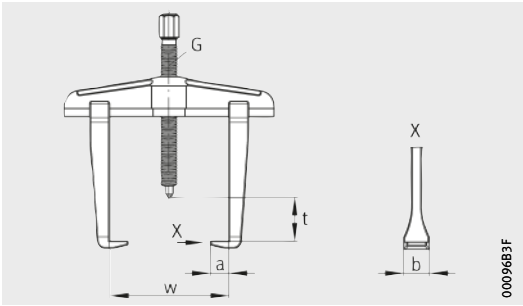
The PULLER-2ARM-SET, *Figure 2*, comprises:

- 1 two-arm extractor PULLER-2ARM130
- 1 two-arm extractor PULLER-2ARM200
- 1 two-arm extractor PULLER-2ARM350
- narrow extraction arms of size 130 and 200
- 1 tube of spindle grease
- 1 transport case.



Figure 2
PULLER-2ARM-SET

Two-arm extractors



PULLER-2ARM

Dimension table									
Designation	Set	Grip width		Grip depth t	Dimensions		Spindle thread G	Extraction force kN	Mass
		w			a	b			m
		min. mm	max. mm	max. mm	mm	mm		≈ kg	
PULLER-2ARM90	–	45	90	100	14	22	M14×1,5	30	0,9
PULLER-2ARM130	①	50	130	100	14	22	M14×1,5	30	1,3
PULLER-2ARM160	–	65	160	150	20	30	G ¹ / ₂	50	2,7
PULLER-2ARM200	①	70	200	150	20	30	G ¹ / ₂	50	3,3
PULLER-2ARM250	–	90	250	200	28	36	G ³ / ₄	75	6,6
PULLER-2ARM350	①	95	350	200	28	36	G ³ / ₄	75	7,5

① Constituent part of **PULLER-2ARM-SET**, mass m ≈ 15,5 kg.

Two-arm separator extractors PULLER-2ARM-SEPARATOR

Features

The two-arm separator extractors PULLER-2ARM-SEPARATOR, *Figure 1*, are suitable for the extraction of complete rolling bearings or tightly fitted inner rings. The bearing rings can be in full contact with a surface, i.e. extraction slots are not necessary.



Figure 1
Two-arm separator extractors
PULLER-2ARM-SEPARATOR

The separator extractor of suitable dimensions is selected in accordance with the bearing size and the mounting conditions, *Figure 2*.

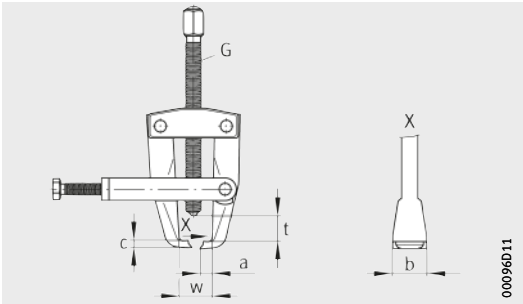
Once the separator extractor has been positioned, the screw on the clamp is rotated in order to slide the arms between the bearing ring and the locating face. This is aided by means of a special profile on the arms. Once the bearing has been wedged in this way, it is then extracted by rotating the spindle.

The wedging of the bearing, in conjunction with centring on the shaft, allows gentle extraction of the bearing.



Figure 2
Use of the two-arm separator
extractor PULLER-2ARM-SEPARATOR

Two-arm separator extractors



PULLER-2ARM-SEPARATOR

Dimension table									
Designation	Grip width		Grip depth t	Dimensions			Spindle thread G	Extraction force	Mass m
	w			a	b	c			
	min. mm	max. mm	max. mm	mm	mm	mm	kN	≈ kg	
PULLER-2ARM-SEPARATOR45	12	45	65	2,5	12 ⁰ ₊₁	5	M10	10	0,55
PULLER-2ARM-SEPARATOR90	20	90	100	2,5	14 ⁰ ₊₁	6	M14×1,5	40	1,36
PULLER-2ARM-SEPARATOR150	20	150	150	2,5	28 ⁰ ₊₁	6	M20×1,5	40	3

Three-arm extractors PULLER-3ARM

Features

The three-arm extractors PULLER-3ARM, *Figure 1*, are suitable for the extraction of complete rolling bearings of widely varying types and of tightly fitted inner rings. These extractors require good radial and axial accessibility of the bearing position, possibly with extraction slots.



Figure 1
Three-arm extractor
PULLER-3ARM

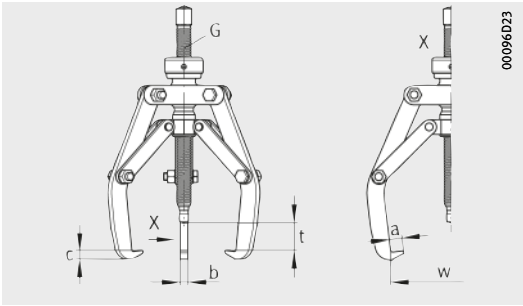
The grip width is set by rotating the knurled disc located above the upper screw. This disc is connected to an adjustment cylinder that has two opposing threads. Due to this arrangement, the two screws rotate simultaneously, which means that the entire grip width can be covered in just a few revolutions. The arms always move symmetrically to the centre, which aids operation under unfavourable conditions. Since the arms are screw mounted, they can be reversed and operation as an internal extractor is possible.

The extractor of suitable dimensions is selected in accordance with the bearing size and the mounting conditions, *Figure 2*. The self-centring function prevents tilting of the bearing during tightening.



Figure 2
Use of the three-arm extractor
PULLER-3ARM

Three-arm extractors



PULLER-3ARM

Dimension table									
Designation	Grip width		Grip depth t	Dimensions			Spindle thread G	Extraction force kN	Mass m ≈ kg
	w			a	b	c			
	min. mm	max. mm	max. mm	mm	mm	mm			
PULLER-3ARM160	35	160	100	14 ⁺¹ ₀	15 ⁺¹ ₀	9	M14×1,5	45	2
PULLER-3ARM230	42	230	165	19 ⁺¹ ₀	22 ⁺¹ ₀	11	M22×2	100	4
PULLER-3ARM310	48	310	235	19 ⁺¹ ₀	22 ⁺¹ ₀	11	M22×2	100	4,5
PULLER-3ARM430	58	430	240	20 ⁺² ₀	30 ⁺² ₀	16	M30×2	150	10
PULLER-3ARM660	62	660	340	22 ⁺² ₀	34 ⁺² ₀	16	M30×2	150	13,8

Hydraulic extractors PULLER-HYD

Features

The hydraulic extractors PULLER-HYD are available with extraction forces of 40 kN to 400 kN. They facilitate simple dismounting of rolling bearings, gears, bushes and other components. Depending on the size, the hydraulic cylinders of the extractors have an integrated or a separate hydraulic hand pump. Due to the rotatable pump lever of the integrated hand pump, the operator can always adopt the optimum working position.

The stroke length can be adjusted by means of the adapter included in the scope of delivery. If there is insufficient space for 3 arms, the extractor can be simply converted to 2 arms.

The parts of the extractor under mechanical load are made from high quality chromium-molybdenum steel. The smooth-running piston is made from quenched and tempered steel with a chromium coating.

Figure 1
Use of the hydraulic extractor
PULLER-HYD in conjunction
with the three-section extraction
plate PULLER-TRISECTION



The application example, *Figure 1*, shows the positioning of the extractor on the bearing. Before the bearing is extracted, the safety mesh or safety sleeve must be put in place.

Scope of delivery

When a hydraulic extractor PULLER-HYD is ordered, the extractor is supplied with the following accessories:

- 1 adapter in the case of extractors with arms of normal length, 2 adapters in the case of extractors with extended arms
- hydraulic cylinder with integrated or separate hydraulic pump, depending on design
- arms of normal length or extended arms, depending on design
- safety mesh or safety sleeve, depending on size
- plastic or metal case, depending on size.

If replacement parts for these components or arms of a different length are required, these can also be ordered as individual items.

PULLER-HYD40 to PULLER-HYD80

The hydraulic extractors with cylinders with an integrated hand pump PULLER-HYD40, 60 and 80 are available for extraction forces of 40 kN, 60 kN and 80 kN, *Figure 2*.

The compact units are housed in a robust plastic case.

For the protection of operating personnel, a safety mesh is included.

The hydraulic extractors PULLER-HYD40 are supplied with arms of normal length. The hydraulic extractors PULLER-HYD60 and PULLER-HYD80 are also available in a version with extended arms, suffix XL.



Figure 2

Hydraulic extractor with integrated hand pump PULLER-HYD80

Hydraulic extractors PULLER-HYD

PULLER-HYD100 to PULLER-HYD300

The hydraulic extractors with cylinders with an integrated hand pump PULLER-HYD100, 120, 200, 250 and 300 are available for extraction forces of 100 kN to 300 kN, *Figure 3*.

The compact units are housed in a rigid metal case. For the protection of operating personnel, a safety sleeve is included.

The hydraulic extractors PULLER-HYD100 to PULLER-HYD300 are also available in a version with extended arms, suffix XL.



Figure 3

Hydraulic extractor with integrated
hand pump PULLER-HYD100

PULLER-HYD400

In the case of the hydraulic extractor PULLER-HYD400 for an extraction force of 400 kN, the oil pressure is applied by means of a separate hand pump. The extractor can be therefore also be used where space is restricted.

The extractor is housed together with the pump in a rigid metal case, *Figure 4*. For the protection of operating personnel, a safety sleeve is included.

The hydraulic extractor PULLER-HYD400 is also available in a version with extended arms, suffix XL.

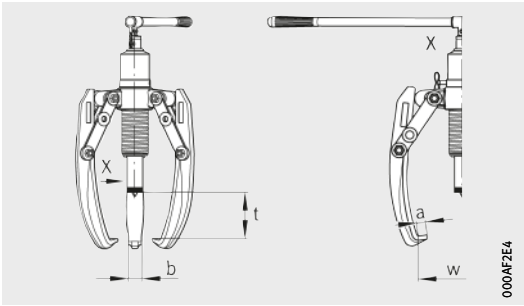


Figure 4

Hydraulic extractor with separate
hand pump PULLER-HYD400

Hydraulic extractors

With integrated hand pump

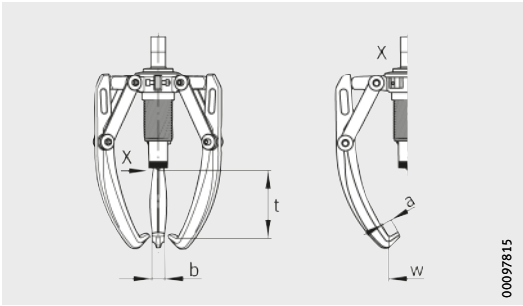


PULLER-HYD
with integrated hand pump

Dimension table							
Designation	Grip width w max. mm	Grip depth t max. mm	Dimensions		Stroke length mm	Extraction force kN	Mass m ≈ kg
			a mm	b mm			
PULLER-HYD40	200	165	14	22	55	40	5,7
PULLER-HYD60	200	165	14	22	82	60	6
PULLER-HYD60 -XL	260	210	21	26			7,2
PULLER-HYD80	260	210	21	26	82	80	8,5
PULLER-HYD80-XL	300	240	21	29			9,5
PULLER-HYD100	250	185	16	22	82	100	7,6
PULLER-HYD100-XL	280	210	16	25			9,3
PULLER-HYD120	300	240	16	25	82	120	10,7
PULLER-HYD120-XL	330	280	19	29			12,3
PULLER-HYD200	360	275	19	29	82	200	13,8
PULLER-HYD200-XL	380	330	25	32			17,3
PULLER-HYD250	410	315	25	32	110	250	22,5
PULLER-HYD250-XL	440	380	28	39			29,4
PULLER-HYD300	540	405	28	39	110	300	35,2
PULLER-HYD300-XL	540	610	40	42			55,7

Hydraulic extractors

With separate hand pump

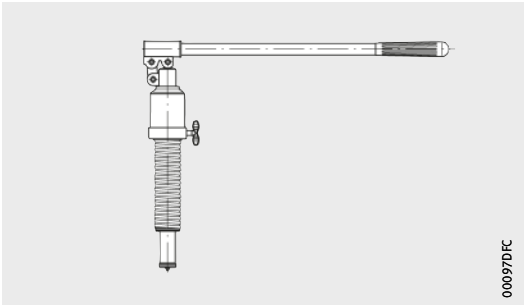


PULLER-HYD
with separate hand pump

Dimension table							
Designation	Grip width w max. mm	Grip depth t max. mm	Dimensions		Stroke length mm	Extraction force kN	Mass m ≈ kg
			a	b			
			mm	mm			
PULLER-HYD400	580	420	40	49	125	400	91,1
PULLER-HYD400-XL	1 000	635	40	51			98,8

Hydraulic extractors

Cylinder with integrated hand pump

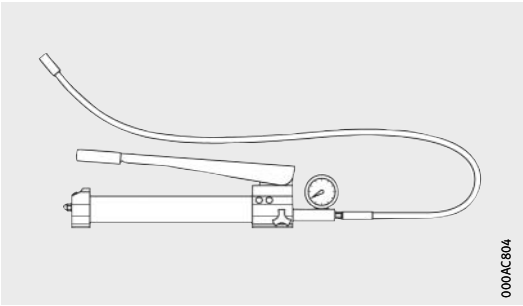


PULLER-HYD40.CYLINDER to
PULLER-HYD300.CYLINDER

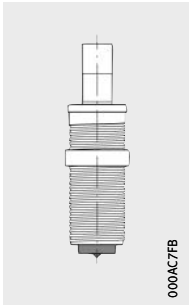
Dimension table						
Designation	Stroke length mm	Extraction force kN	Hydraulic pressure max. bar	Oil quantity l	Suitable for extractor	Mass m ≈ kg
PULLER-HYD40.CYLINDER	55	40	460	0,6	PULLER-HYD40	2,6
PULLER-HYD60.CYLINDER	80	60	690	0,8	PULLER-HYD60 (60XL)	3
PULLER-HYD80.CYLINDER	80	80	620	1,2	PULLER-HYD80 (80XL)	3,6
PULLER-HYD100.CYLINDER	80	100	1 150	0,8	PULLER-HYD100 (100XL)	2,9
PULLER-HYD120.CYLINDER	80	120	940	1,2	PULLER-HYD120 (120XL)	3,4
PULLER-HYD200.CYLINDER	80	200	1 080	2	PULLER-HYD200 (200XL)	4,2
PULLER-HYD250.CYLINDER	100	250	1 030	3,3	PULLER-HYD250 (250XL)	7,2
PULLER-HYD300.CYLINDER	100	300	890	4,3	PULLER-HYD300 (300XL)	9,3

Hydraulic extractors

Cylinder
with separate hand pump



PULLER-HYD400.PUMP

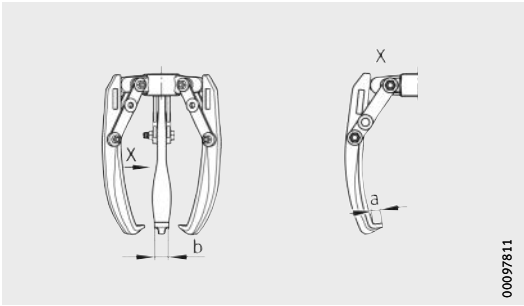


PULLER-HYD400.
CYLINDER

Dimension table						
Designation	Stroke length	Extraction force	Hydraulic pressure max.	Oil quantity	Suitable for extractor	Mass
	mm	kN	bar	l		m ≈ kg
PULLER-HYD400.PUMP	120	400	700	1,3	PULLER-HYD400 (400XL)	7,3
PULLER-HYD400.CYLINDER	120	400	700	1,3	PULLER-HYD400 (400XL)	18

Hydraulic extractors

Arms for extractors



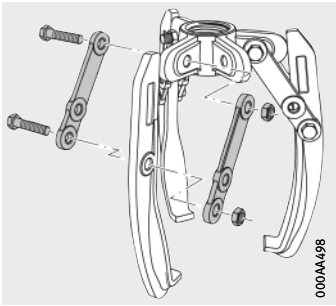
PULLER-HYD..JAW

Dimension table · Dimensions in mm					
Designation	Dimensions		As replacement part for extractor	As accessory with extended arms for extractor	Mass m ≈ kg
	a	b			
PULLER-HYD40.JAW	14	22	PULLER-HYD40	–	3,1
PULLER-HYD60.JAW	14	22	PULLER-HYD60	–	3,1
PULLER-HYD60.JAW-LONG	21	26	PULLER-HYD60-XL	PULLER-HYD60	4,5
PULLER-HYD80.JAW	21	26	PULLER-HYD80	–	4,8
PULLER-HYD80.JAW-LONG	21	29	PULLER-HYD80-XL	PULLER-HYD80	5,9
PULLER-HYD100.JAW	16	22	PULLER-HYD100	–	4,2
PULLER-HYD100.JAW-LONG	16	25	PULLER-HYD100-XL	PULLER-HYD100	5,7
PULLER-HYD120.JAW	16	25	PULLER-HYD120	–	7,1
PULLER-HYD120.JAW-LONG	19	29	PULLER-HYD120-XL	PULLER-HYD120	8,6
PULLER-HYD200.JAW	19	29	PULLER-HYD200	–	9,1
PULLER-HYD200.JAW-LONG	25	32	PULLER-HYD200-XL	PULLER-HYD200	12,3
PULLER-HYD250.JAW	25	32	PULLER-HYD250	–	14,5
PULLER-HYD250.JAW-LONG	28	39	PULLER-HYD250-XL	PULLER-HYD250	19
PULLER-HYD300.JAW	28	39	PULLER-HYD300	–	24,8
PULLER-HYD300.JAW-LONG	40	42	PULLER-HYD300-XL	PULLER-HYD300	44,2
PULLER-HYD400.JAW	40	49	PULLER-HYD400	–	64,6
PULLER-HYD400.JAW-LONG	40	51	PULLER-HYD400-XL	PULLER-HYD400	71,5

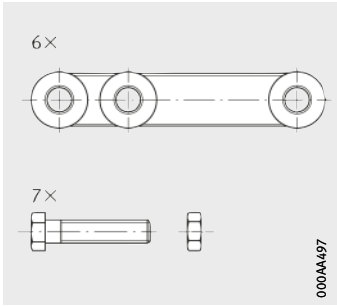
A delivered unit always comprises 3 arms including the star-shaped retaining device.

Hydraulic extractors

Extensions
for extractor arms



Extensions for extractor arms



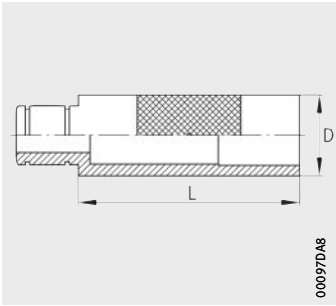
PULLER-HYD.JOINT-..-KIT

Dimension table	
Designation	Suitable for extractor
PULLER-HYD.JOINT-A-KIT	PULLER-HYD40
	PULLER-HYD60
	PULLER-HYD60XL
PULLER-HYD.JOINT-B-KIT	PULLER-HYD80
	PULLER-HYD80XL
PULLER-HYD.JOINT-C-KIT	PULLER-HYD100
	PULLER-HYD100XL
PULLER-HYD.JOINT-D-KIT	PULLER-HYD120
	PULLER-HYD120XL
	PULLER-HYD200
	PULLER-HYD200XL
PULLER-HYD.JOINT-E-KIT	PULLER-HYD250
	PULLER-HYD250XL
PULLER-HYD.JOINT-F-KIT	PULLER-HYD300
	PULLER-HYD300XL
PULLER-HYD.JOINT-G-KIT	PULLER-HYD400
PULLER-HYD.JOINT-H-KIT	PULLER-HYD400XL

A delivered unit always comprises 6 struts and 7 screws with nuts.

Hydraulic extractors

Adapters

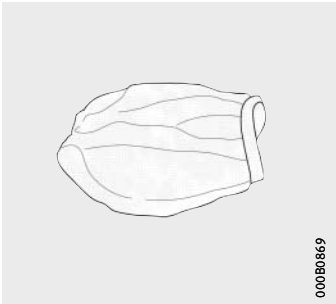


PULLER-HYD.ADAPTER

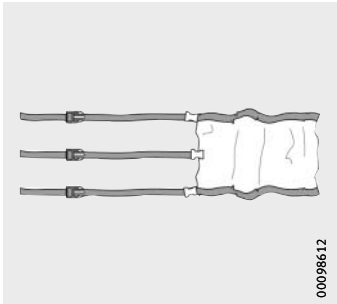
Dimension table · Dimensions in mm				
Designation	Dimensions		Suitable for extractor	Mass m ≈ kg
	D	L		
PULLER-HYD.ADAPTER-D25/L50	25	50	PULLER-HYD40 (60, 100, 100XL)	0,18
PULLER-HYD.ADAPTER-D28/L80	28	80	PULLER-HYD80 (120, 120XL)	0,25
PULLER-HYD.ADAPTER-D35/L100	35	100	PULLER-HYD200 (200XL, 175, 175XL)	0,45
PULLER-HYD.ADAPTER-D45/L110	45	110	PULLER-HYD250 (250XL)	0,95
PULLER-HYD.ADAPTER-D55/L150	55	150	PULLER-HYD300 (300XL)	1,65
PULLER-HYD.ADAPTER-D69/L150	69	150	PULLER-HYD400 (400XL)	2,55
PULLER-HYD.ADAPTER-D69/L250	69	250	PULLER-HYD400 (400XL)	3,7

Hydraulic extractors

Safety mesh
Safety sleeve



Safety mesh



Safety sleeve

Dimension table		
Designation	Suitable for extractor	Design
PULLER-HYD.NET-A	PULLER-HYD40	Safety mesh
	PULLER-HYD60	
PULLER-HYD.NET-B	PULLER-HYD60XL	
	PULLER-HYD80	
	PULLER-HYD80XL	
PULLER-HYD.NET-C	PULLER-HYD100	Safety sleeve
PULLER-HYD.NET-D	PULLER-HYD100XL	
	PULLER-HYD120	
PULLER-HYD.NET-E	PULLER-HYD120XL	
	PULLER-HYD200	
PULLER-HYD.NET-F	PULLER-HYD200XL	
	PULLER-HYD250	
PULLER-HYD.NET-G	PULLER-HYD250XL	
	PULLER-HYD300	
PULLER-HYD.NET-H	PULLER-HYD400	
PULLER-HYD.NET-I	PULLER-HYD300XL	
	PULLER-HYD400XL	

Three-section extraction plates PULLER-TRISECTION

Features

The three-section extraction plates PULLER-TRISECTION, *Figure 1*, are used for the extraction of complete bearings or tightly fitted inner rings.



Figure 1
Three-section
extraction plate PULLER-TRISECTION

The extraction plates are mainly suitable for mounting situations where a three-arm extractor on its own cannot be used to achieve gentle extraction by means of the inner ring. This can be the case, for example, where there are no extraction slots or the bearing rings are wide, if the arms cannot grip the inner ring.

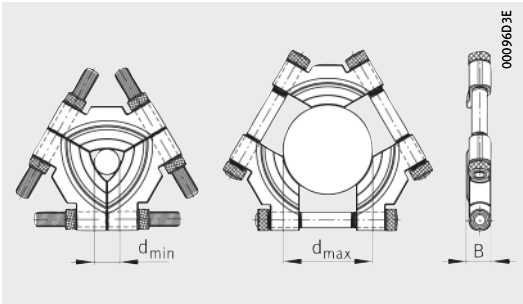
Good radial access to the bearing position is required. Extraction of inner rings and complete rolling bearings without damage is possible with proper handling.

The three extraction plates are pushed, by means of alternately screwing in the nuts, between the shaft shoulder and inner ring. The bearing is extracted by means of an extractor that is inserted into the plates, *Figure 2*.



Figure 2
Use of the three-section
extraction plate PULLER-TRISECTION

Three-section extraction plates



PULLER-TRISECTION

Dimension table · Dimensions in mm						
Designation	Dimensions			Recommended for extractor		Mass
	d		B	PULLER-HYD	PULLER-3ARM	m
	min.	max.				≈ kg
PULLER-TRISECTION-50	12	50	17	–	160	0,43
PULLER-TRISECTION-100	26	100	28	40, 60, 80, 100	230	2,27
PULLER-TRISECTION-160	50	160	37	80, 100, 120, 175, 200	310	6,07
PULLER-TRISECTION-260	90	260	53	175, 200, 250, 300	430	19,4
PULLER-TRISECTION-380	140	380	71	250, 300, 400	660	48,2



Accessories

Transport and mounting tool

Transport and mounting tool BEARING-MATE

Features

The transport and mounting tool BEARING-MATE is an accessory for the secure, rapid and easy handling of medium-sized and large rolling bearings. It can also be used where bearings are heated prior to mounting.

The tool comprises two handles and two steel strips.

Turning the handles clamps the steel strips firmly on the outer ring of the rolling bearing. The compact packaging also includes two brackets.

These are used on self-aligning ball bearings and spherical roller bearings in order to prevent tilting of the inner rings.

The tool and bearing are carried either by two people or a crane. If two carrying slings are used, the rolling bearing can be rotated to any position when transported by crane. During heating on an induction heating device, the tool remains mounted on the bearing. The steel strips expand uniformly with the bearing. Optimum tension is thus maintained.

Scope of delivery

The scope of delivery of BEARING-MATE, *Figure 1*, comprises:

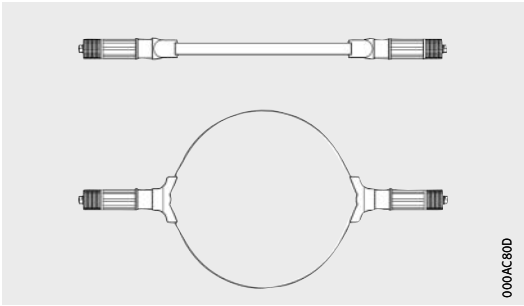
- transport and mounting tool BEARING-MATE
- two short brackets to prevent tilting of the inner rings of self-aligning bearings
- multi-purpose grease Arcanol MULTI2 (20 g tube).



Figure 1
Scope of delivery of
BEARING-MATE

- Designs** The transport and mounting tool is available in four designs with steel strips of differing lengths, see page 56. This can be used to transport bearings with outside diameters from 250 mm to 1 050 mm.
- Accessories** The following are available as accessories:
- long brackets to prevent tilting of the inner rings of self-aligning bearings (2 pieces)
Ordering designation: **BEARING-MATE.LOCKBAR270**
- Replacement parts** The following are available as replacement parts:
- short brackets to prevent tilting of the inner rings of self-aligning bearings (2 pieces)
Ordering designation: **BEARING-MATE.LOCKBAR170**
 - pack of small parts with replacement labels for the BEARING-MATE and a 20 g tube of Arcanol MULTI2
Ordering designation: **BEARING-MATE.SERVICE-KIT**

Transport and mounting tool



BEARING-MATE

Dimension table · Dimensions in mm					
Designation	Suitable for bearings with			Operating temperature max. °C	Mass m ≈ kg
	Outside diameter		Mass ≈ kg		
	min.	max.			
BEARING-MATE250-450	250	450	500	160	6,3
BEARING-MATE450-650	450	650	500	160	6,4
BEARING-MATE650-850	650	850	500	160	6,5
BEARING-MATE850-1050	850	1 050	500	160	6,85

Schaeffler Technologies AG & Co. KG

Georg-Schäfer-Straße 30
97421 Schweinfurt
Germany
Internet www.schaeffler.de/en
E-mail info.de@schaeffler.com

In Germany:

Phone 0180 5003872
Fax 0180 5003873

From other countries:

Phone +49 9721 91-0
Fax +49 9721 91-3435

Every care has been taken to ensure the correctness of the information contained in this publication but no liability can be accepted for any errors or omissions. We reserve the right to make technical changes.

© Schaeffler Technologies AG & Co. KG

Issued: 2019, January

This publication or parts thereof may not be reproduced without our permission.

TPI 216 GB-D